SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 2 is found on page 17, lines 21-23 and page 22, lines 6-11 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 2 and 7-10 will now be active in this application.

REQUEST FOR RECONSIDERATION

The claimed invention is directed to a thermoplastic resin suitable for a molding material for an automotive exterior part and provides a thermoplastic resin composition comprising 50-85 wt. % of a reinforced acrylic rubber [A], 3-25 wt. % of a diene rubber [B], 5-40 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of **31 to 45 mass%** [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of less than 30 mass% [E] **wherein a content of bonded vinyl cyanide compounds in an acetone-soluble fraction of said thermoplastic resin composition is 30 to 45 mass% with respect to said acetone-soluble fraction**. Applicants have discovered such a combination to provide for excellent dimensional accuracy of molded articles due to excellent coating property, weather resistance, peeling property and flexibility as well as a small linear expansion coefficient. Such a composition is nowhere disclosed or suggested in the cited art of record.

The rejections of claims 2 and 7-11 under 35 U.S.C. §103(a) over Miyajima et al. in view of Guentherberg et al. is respectfully traversed.

The cited references fail to disclose or suggest the claimed combination of 50-85 wt. % of [A] a grafted acrylic rubber, 3-25 wt. % of [B] a grafted diene rubber, 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **31 to 45 mass%** [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E] wherein a content of bonded vinyl cyanide compounds in an acetone-soluble fraction of said thermoplastic resin composition is 30 to 45 mass% with respect to said acetone-soluble fraction.

Miyajima et al. describes a rubber-modified thermoplastic resin comprising 5-99 wt. % of a rubber-modified thermoplastic resin (A) comprising 50-85 wt. % of a rubbery polymer (a) modified with 5-48 wt. % of an aromatic vinyl compound (b) and 2-45 wt. % of a vinyl

cyanide compound (c) and 1-95 wt. % of at least "one other thermoplastic resin." The other thermoplastic resin is described at column 6, lines 35-61 as follows:

> The thermoplastic resin (B) is preferably the following a. and b. which are used alone or in combination of two or more:
>
> a. Rubber-modified thermoplastic resins having a rubbery polymer content of less than 50% by weight obtained by polymerizing a monomer mixture consisting of at least two types of monomers selected from the group consisting of **aromatic vinyl compounds, vinyl cyanide compounds**, (meth)acrylic acid esters and maleimide monomers in the presence of a rubbery polymer, in other words, **rubber-modified thermoplastic resins** other than the rubber-modified thermoplastic resin (A) [referred to hereinafter as the rubber-modified thermoplastic resin (C)]. Incidentally, the rubbery polymer and monomers used here may be those mentioned above. Also, the intrinsic viscosity of the methyl ethyl ketone-soluble matter of the rubber-modified thermoplastic resin is preferably 0.2 to 1 dl/g, more preferably 0.3 to 0.6 dl/g, as measured in methyl ethyl ketone at 30° C.
>
> b. Copolymers obtained by polymerizing a monomer mixture consisting of at least two types of monomers selected from the group consisting of aromatic vinyl compounds, vinyl cyanide compounds, (meth)acrylic acid esters and maleimide monomers which copolymers have an intrinsic viscosity of preferably 0.2 to 1.3 dl/g, more preferably 0.3 to 1 dl/g and most preferably 0.35 to 0.7 dl/g as measured in methyl ethyl ketone at 30° C.

Thus, the reference describes using thermoplastic resin which can contain one, two or more polymers any of which could contain a vinyl cyanide compound. There is no disclosure of 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **31 to 45 mass%** [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E] (item 10 of outstanding official action).

Applicants further note, contrary to item 6 of the outstanding official action and citation of example 7, there is **no disclosure** of a composition comprising a mixture of modified rubber with two styrene/acrylonitrile copolymer one having 25% acrylonitrile and the other copolymer comprising 30% acrylonitrile. In example 7, thermoplastics AS-1 and AS-2 are used, each copolymer having an acrylonitrile content of 25%. The vinyl cyanide content for the two resins is **the same**.

However, item 9 of the outstanding official action, reasons "Since **Miyajima et al.** taches the use of a combination of both modified acrylic rubber and diene rubber, and styrene/acrylonitirle copolymers comprising **different content** of vinyl cyanide monomer (25% and 30%) as in Example 7) to produce compositions comprising different flexural modulus values....it would have been obvious to one skilled in the art at the time...to try to make variations within the ranges given by **Miyajima et al.** to obtain predictable results (flexural modulus)." Thus, the foundational predicate for the obviousness analysis is **erroneous**. Since the foundation for the examiner's obviousness rejection is erroneous, the rejection for obviousness must be withdrawn, as based on factually incorrect assertions.

Furthermore, there is really no suggestion for formulation of such a composition comprising an acrylic rubber and a diene rubber.

Component (A) of Miyajima et al. merely describes use of a rubber polymer component (a) which **may be** an acrylonitrile-butadine copolymer, an ethylene α-olefin an acrylic rubber amongst others. There is no requirement that an acrylic rubber be used in component (a). As to component (B) the rubber-modified thermoplastic resin may include ABS resin, AES resins, AAS resins, MBS resins and the like (column 6, lines 62-65). Such a vast number of possible rubbery polymers and rubber-modified thermoplastic resins fails to specify each of an acrylic rubber and a diene rubber as components of a thermoplastic resin composition, as claimed.

Further, while example 8 of Miyajima et al. may be looked at as using thermoplastic resins having 25% acrylonitrile and 30 % acrylonitrile, such example is in the context of a composition having a bonded vinyl cyanide content in the acetone soluble fraction of only 27.2%.

The bonded vinyl cyanide content in the acetone soluble fraction for example 8 is calculated as follows:

	Compounding (part)	f-AS (part)	AN%
ABS-1	45	9.6	30
AS-2	36.7	36.7	25
AS-3	18.3	18.3	30

Grafting degree 31%, rubber 60%

AN% = (9.67 x 0.3 + 36.7 x 0.25 + 18.3 x 0.3)/ (9.6 + 36.7 + 18.3) x 100 - 27.2%

f-AS shows not grafted and free resin content of the AS resin
g-AS shows the grafted resin content of the AS resin
AN% shows the "content of bonded vinyl cyanide compounds in the acetone-soluble fraction

Rubber is insoluble in acetone
g-AS is insoluble in acetone
f-AS is soluble in acetone

Numerical number 9.6 of f-AS in the ABS-1 selection is calculated as follows:

g-As is calculated as 18.6 % by 60 x 0.31 = 18.6 in ABS-1 section
f-AS is calculated as 21.4% by 100 - 60- 18.6 = 21.4 in ABS-1
f-AS (part) is calculated as 9.6 by 45 x 0.214 = 9.6

In contrast, the claimed invention is directed to a thermoplastic resin composition comprising 50-85 wt. % of a reinforced acrylic rubber [A], 3-25 wt. % of a reinforced diene rubber [B], 5-40 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of 31 to 45 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E] wherein a content of bonded vinyl cyanide compounds in an acetone-soluble fraction of said thermoplastic resin composition is 30 to 45 mass% with respect to said acetone-soluble fraction. Applicants note that the claims have been amended to recite a bonded vinyl cyanide content of only 31 to 45 wt. % as well as a content of bonded vinyl cyanide compounds in an acetone-soluble fraction of 30 to 45 mass%. Thus, while the reference allows for the presence of copolymers having vinyl cyanide groups, there is no disclosure or suggestion from such **a generic disclosure** of having 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **31 to 45**

mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E].

The basic deficiencies of the primary reference are not cured by Guentherberg et al..

Guenterberg et al. has been cited for disclosing two thermoplastic polymers having acrylonitrile contents of 19-31 wt. % and 31-37 wt. %. However, applicants note that such a composition is in **the absence of an acrylic rubbery polymer** and therefore the concept of using two thermoplastic polymers having acrylonitrile contents of 19-31 wt. % and 31-37 wt. % is limited to compositions having only a diene rubbery polymer and not both an acrylic rubbery polymer and a diene rubber polymer.

Further, even though example 9 of Guentherberg et al. contains two types of AS resin, B1 has an acrylonitrile content of 25%, while B3 has an acrylonitrile content of 30%, as reported in Table 3. There is no disclosure of a component [D] having a bonded vinyl cyanide content of **31 to 45 % by mass**. Applicants note that the claims have been amended to recite that component [D] has a bonded vinyl cyanide content of 31 to 45 % by mass.

Thus, not only is Guentherberg et al. not suggestive of the combination of acrylic rubbery polymer and diene rubber polymer, but there is no suggestion of the combination of 1) a vinyl aromatic copolymer having a bonded vinyl cyanide content of 31 to 45 % by mass and 2) a vinyl aromatic copolymer having a bonded vinyl cyanide content of less than 30 % by mass. These two defects, preclude a conclusion of obviousness when combined with the disclosure of Miyajima et al.

The rejection of claims 2 and 7-11 under 35 U.S.C. §103 (a) over Miyajima et al. in view of Mishima et al. U.S. 5,466,759 is respectfully traversed.

The cited combination of references fails to make obvious the claims having a combination of acrylic rubbery polymer and diene rubber polymer, a vinyl aromatic

copolymer having a bonded vinyl cyanide content of 31 to 45 % by mass and a vinyl aromatic copolymer having a bonded vinyl cyanide content of less than 30 % by mass.

The deficiencies of Miyajima et al. has been discussed above.

As to Mishima et al., this reference suffers the same deficiency as Guentherberg et al as **only one graft copolymer** , either B-1 to B-5 is disclosed in all of the examples. Therefore the concept of having the combination of acrylic rubbery polymer and diene rubber polymer is not disclosed.

Further, while copolymer (E) having 30 % acrylonitrile and copolymer (A) having an acrylonitrile content of 28% are disclosed, there is no disclosure of an aromatic vinyl copolymer having **a bonded vinyl cyanide content of 31 to 45 % by mass**. The copolymer having an acrylonitrile content of 30% fails to disclose or suggest a bonded vinyl cyanide content of 31 to 45 % by mass.

In view of the deficiencies in the combined disclosure of Miyajima et al. and Mishima et al. withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The rejection of claims 2 and 7-11 under 35 U.S.C. §103 (a) over Jung et al. U.S. 6,114,442 in view of Mishima et al. U.S. 5,466,759 is respectfully traversed.

The cited combination of references fails to make obvious the claims having a combination of acrylic rubbery polymer and diene rubber polymer, a vinyl aromatic copolymer having a bonded vinyl cyanide content of 31 to 45 % by mass and a vinyl aromatic copolymer having a bonded vinyl cyanide content of less than 30 % by mass.

The deficiencies of Mishima et al. have been discussed above.

Jung et al. discloses a heat resistant resin containing ABS resin ASA resin and AS resin. However the content of bound vinyl cyanide in a vinyl aromatic copolymer is below 31-45 % by mass.

Specifically, the vinyl cyanide contents of copolymers C, D and E are all below 25%. As such, there can be no disclosure of a vinyl aromatic copolymer having a bonded vinyl cyanide content of 31 to 45 % by mass.

The defects are not cured by Mishima et al. as the disclosure of a vinyl cyanide content of 30 % is not a disclosure of a content of 31 to 45 % by mass.

In view of the deficiencies in the combined disclosure of Jung et al. and Mishima et al. withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The rejections of claims 8-10 under 35 U.S.C. §103 (a) over Miyajima et al. in view of Guentherberg et al. in further view of Jung et al. and over the combination of Miyajima et al, Mishima et al. and Jung et al. are respectfully traversed.

The deficiencies of the four cited references has been discussed above. In total, the combined disclosures of the references fails to disclose a combination of acrylic rubbery polymer and diene rubber polymer, a vinyl aromatic copolymer having a bonded vinyl cyanide content of 31 to 45 % by mass and a vinyl aromatic copolymer having a bonded vinyl cyanide content of less than 30 % by mass.

In view of the deficiencies in the combined disclosures withdrawal of the rejections under 35 U.S.C. 103(a) is respectfully requested.

The rejections of claims 2, 7 and 11 under 35 U.S.C. 103(a) over Kim et al. U.S. 5,747,587 and of claims 8-10 under 35 U.S.C. 103(a) in further view of Jung et al. are respectfully traversed.

Kim et al. discloses a resin composition for preparing an internal box of a refrigeratorhaving a copolymer (C) having an acrylonitrile content of 40 wt. % and a copolymer (D) having 33 wt. % of acrylonitrile. There is no disclosure of a vinyl aromatic copolymer having a bonded vinyl cyanide content of **less than 30 % by mass**. Even though there is a disclosure of ABS resin, ASA resin and AS resin, there is no disclosure of a vinyl

aromatic copolymer having a bonded vinyl cyanide content of less than 30 % by mass. Further there is no discloser of a composition having 30-45 % bonded vinyl cyanide content by use of the combination f AS resins such as component [D] having a high bonded vinyl cyanide content and the one such as component [E] having a low bonded vinyl cyanide content, as claimed.

Even further, applicants take general exception to the combination of references in the rejection to the extend that the references are directed to different composition designed to address specific problem. The rejections appear to have been a mere mechanical search for the claim limitations, in the absence of any consideration as to the problems addressed by the various references.

Specifically, Miyajima et al. provides a rubber modified thermoplastic of a graft polymer having a high rubber content providing for **mechanical strength** (column 1, lines 5-11). In contrast, Guentherberg et al. seek the preparation of a molding composition having **little intrinsic color** (see abstract). It is not as if the use of two acrylonitrile contents as disclosed in Guentherberg et al. was identified as responsible for conferring a low intrinsic color. The fundamentally different goals calls into question the basic motivations for selecting the specific features of one reference to combine with the second reference in view of the vastly different goals.

As to the combination of Miyajima et al. with Mishima et al., Mishima et al. is directed to a nonflammable injection-molding resin composition. The differences between mechanical strength and seeking a non-flammable composition calls into question the motivation for combining the references. It is not as if the use of two acrylonitrile contents as disclosed in Mishima et al. were responsible for making the composition non-flammable such that there would have been motivation to use such a combination in conferring a level of non-flammability to the composition of Miyajima et al. The fundamentally different goals calls

into question the basic motivations for selecting the specific features of one reference to combine with the second reference in view of the vastly different goals.

As to the combination of Jung et al. with Mishima et al., Jung et al. describes goals of chemical and heat-resistance in a styrene-based resin. Such goals are much different from the nonflammability goals of Mishima et al. calls into question the motivation for combining the references. The fundamentally different goals calls into question the basic motivations for selecting the specific features of one reference to combine with the second reference in view of the vastly different goals.

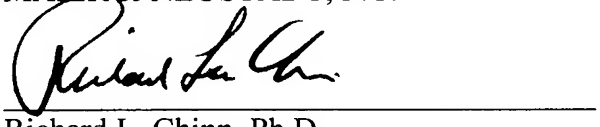
As to the combination of Kim et al. with Jung et al., Jung et al. is directed to chemical and heat resistance for use in automotive parts (column 1, lines 6-12) while Kim et al. is directed to an HCFC resistant composition for use in a refrigerator box. The differences in chemical resistance between chemicals which contact automotive parts with the HCFC found in a refrigerator box are so different as to call into question the motivation to combine the disclosures.

Withdrawal of the rejections under 35 U.S.C. 103(a) is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Richard L. Chinn, Ph.D.
Attorney of Record
Registration No. 34,305

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)